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PSYCHE

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ON A SMALL COLLECTION OF FULGOROIDEA (HOMOPTERA) FROM THE VIRGIN ISLANDS[1]

BY R. G. FENNAH
Entomologist, Food-crop Pests Investigation,
Windward and Leeward Islands

The Virgin Islands, which lie between 18°55 N. 64°10 W. and 18°25 N. 65°00 W., are the eastern outliers of the Greater Antilles. St. Thomas, the westernmost, is separated by a channel 30 miles wide from Culebra, off Puerto Rico, while St. John is 70 miles from the St. Barts group to the south. St. Croix, though politically grouped with the Virgin Islands, is not considered here as it stands apart from the chain of islands between St. Thomas and Anegada.

The natural vegetation of these islands consists to an overwhelming extent of dry scrub. At the summit of the highest points occur small patches of woodland with the characteristics of true mountain forest.

As far as Fulgoroidea are concerned, the affinities of the fauna are unquestionably with that of Puerto Rico, and it would seem (in the absence of collections from the St. Barts group) that the islands represent the furthermost limit of some of the Greater Antillean species. Of the species discussed below *Bothriocera eborea* Fenn. and *Sogata furcifera* (Horv.) are the only two which range southward through the Leeward and Windward Islands: *Oliarus campestris* Fenn., *Petrusa marginata*

1 Published with a grant from the Museum of Comparative Zoology at Harvard College.

(Brunn.) and *Melormenis quadripunctata* (F.) occur in the Greater Antilles and in the Leeward Islands (Antigua, St. Kitts, Nevis, Montserrat) but not in the Windward Islands; *Cubana tortriciformis* Muir is represented in the Lesser Antilles by very close geographical equivalents grouped around the St. Vincent *Cubana tortrix* Uhl.; *Neurotmeta* occurs as far south as Dominica; *Oliarus campestris* is very clearly replaced in the Windward Islands and Trinidad by *O. maidis* Fenn. The group of species or subspecies closely resembling *Acanalonia depressa* Mel. has no representatives in the Lesser Antilles, while the *Thionia* described below is not very close to any Lesser Antillean species. The genera *Ladella, Remosa,* and *Tangella* and the flatid *Parthenormenis* described below do not occur in the Lesser Antilles and have no obvious equivalents there, though by contrast the forest-dwelling *Chasmacephala* of the Windward Islands clearly shares a common ancestry with the Greater Antillean *Parahydriena* and *Cyphoceratops.*

In so small a collection little significance can be attached to the absence of species but, in view of their abundance in the Leeward Islands as far north as Anguilla, the writer would have expected to find a species of *Ilesia* among the flatids of the littoral zone. The genus *Antillormenis* does not reach northward of the Leeward Islands and even here occurs only in Montserrat.

Cixiidæ

Cubana Uhler

Uhler 1895 *Proc. Zool. Soc. Lond.:* 62. Haplotype, *Cubana tortrix* Uhler *loc. cit.:* 62.

Cubana tortriciformis Muir

Muir 1924 *Proc. Haw. Ent. Soc.* 5, 3: 461.

A single female taken by the writer at Road Town, Tortola (Feb. 25, 1944) is assigned to this species. The specimen differs from the type of *C. tortrix* only in having the distal fuscous line in the tegminal membrane overlying cell R2 and the large spot basad of it biconcave on its inner face. It is probable that *Pintalia alta* Osborn is this species.

Oliarus (*Melanoliarus*) Fenn.

Fennah 1945 *Proc. Biol. Soc. Wash.* 58: 141. Subgenotype, *Oliarus maidis* Fenn. 1945 *Proc. U. S. Nat. Mus.* 95: 423.

Oliarus (*Melanoliarus*) *campestris* Fenn.

Fennah 1945 *loc. cit.:* 141.

One male was taken by the writer on Jost Van Dyke (Feb. 18, 1944). In this subgenus of *Oliarus* each ovary comprises sixteen ovarioles. In the closely allied genus *Vincentia* each ovary has eighteen ovarioles.

Bothriocera Burm.

Burmeister 1835 Handbuch der Entomologie: 156. Haplotype, *Bothriocera tinealis* Burmeister *loc. cit.:* 156.

Bothriocera eborea Fenn.

Fennah 1943 *Psyche* 52: 14.

Three males and four females were taken by the writer on Jost Van Dyke on *Coccoloba uvifera* (Feb. 18, 1944), and two males and eight females on Tortola (Feb. 15–17, 1944).

Delphacidæ

Sogata Distant

Distant 1906 F. B. I. 3: 471. Orthotype, *Sogata dohertyi* Distant *loc. cit.:* 471.

Sogata furcifera (Horv.)

Delphax furcifer Horvath 1899 *Term. Fuz.* 22: 372.

One male taken by the writer at Road Town, Tortola (Feb. 14, 1944). This generic assignment is merely provisional pending revision of the family.

Tropiduchidæ

The tropiduchid fauna of Central America and the West Indies is rich in genera and nomenclatorial confusion has arisen as a result of changed conceptions of generic limits. In his classification of the family Melichar accorded tribal status to genera in which a costal area with transverse veinlets is present in the tegmina; genera within this group characterised by marked elonga-

tion of the vertex were separated as a further tribe (Peggiogini). These tribal characters are not rigorous in their application, but intergrade with those found in the Tambiniini both in West Indian and Australasian genera. The development of a costal area, for example, may vary within a single genus. The South American *Rotunosa indicanda* (Wlk.) has a narrow costal area with distinct transverse veinlets in the distal part of the corium; nearer the base the costal area narrows and these veinlets progressively merge into the membrane, where they are visible only as faint striæ, and finally disappear. In *Rotunosa grandis* (Fenn.) the costal vein is slightly submarginal and devoid of transverse veinlets, though towards the node faint transverse striæ can be detected. This condition can be matched elsewhere in tambiniine Tropiduchidæ. As far as American genera are concerned the writer proposes to regard all in which the antennæ are short, with the second joint subglobose, the mesonotum less than 1.5 times as broad as long with the lateral discal carinæ parallel in their basal half, the tegmina thin and subhyaline, with a line of transverse veins between the node and apex of the clavus as belonging to a single subfamily. This group appears to be naturally related to the Old World *Tropiduchus*.

A key to the new world genera, based on this view, is given below, being modified from the writer's earlier key to Tambiniini (*sensu* Melichar).

Key to New World Genera of Tropiduchini

(1) (2) Tegmina with a distinct costal area, subequal in width to costal cell, traversed by veinlets to margin for most of length ..... (3)

(2) (1) Tegmina with costal vein marginal, or very narrowly separated, no veinlets to margin along most of length ..... (11)

(3) (4) Vertex twice as long as broad or nearly so *Pseudotangia* Metcalf

(4) (3) Vertex relatively shorter ..... (5)

(5) (6) Vertex as long as broad or slightly longer than broad ..... (7)

(6) (5) Vertex broader than long ..... (9)

(7) (8) Frons with an oblique ridge distally on each side of middle ..... *Vanuoides* Metcalf
(8) (7) Frons with median carina only ..... *Ladella* Stål
(9) (10) Median carina of vertex Λ-shaped *Tangyria* Uhler
(10) (9) Median carina simple, not forked basally *Tangella* Metcalf and Bruner
(11) (12) Vertex as long as pronotum and mesonotum, more than twice as long as broad ..... (13)
(12) (11) Vertex produced before eyes but not greatly prolonged anteriorly ..... (15)
(13) (14) Vertex with median carina simple to base *Remosa* Distant
(14) (13) Vertex with median carina forked basally *Rotunosa* Distant
(15) (16) Tegmina with one or no transverse line distad of nodal line ..... (17)
(16) (15) Tegmina with numerous irregular cross-veins in membrane ..... (25)
(17) (18) Vertex distinctly longer than broad ..... (19)
(18) (17) Vertex not longer than broad ..... (21)
(19) (20) Tegmina with a row of subapical areoles distad of nodal line ..... *Athestia* Melichar
(20) (19) Tegmina with only apical areoles distad of nodal line, no subapical line ..... *Biruga* Fennah
(21) (22) Vertex three times as broad as long *Colgorma* Kirkaldy
(22) (21) Vertex twice as broad as long, or less ..... (23)
(23) (24) Species more than 7 mm. long; lateral pronotal fields and mesopleurites green *Neorudia* Fennah
(24) (23) Species less than 7 mm. long; lateral pronotal fields at margin and a spot on mesopleurites piceous ..... *Amapala* Melichar
(25) (26) Vertex with median carina simple, unbranched basally ..... (27)
(26) (25) Vertex with median carina ʌ or Λ-shaped (33)
(27) (28) Frons ecarinate, sides of vertex parallel *Pelitropis* Van Duzee
(28) (27) Frons medially carinate ..... (29)

(29) (30) Tegmina with M not forked before nodal line; two irregular ranks of transverse veins in membrane distad of nodal line ..... *Amaclardea* Muir

(30) (29) Tegmina with M forked before nodal line, more than two ranks of irregular transverse veins in membrane ..... (31)

(31) (32) Media forking near base of tegmen *Monopsis* Spinola

(32) (31) Media forking near middle of tegmen *Neurotmeta* Guérin-Méneville

(33) (34) Vertex with median carina ʌ-shaped ..... (35)

(34) (33) Vertex with median carina Λ-shaped ..... (39)

(35) (36) Vertex longer than broad, directed upward distally ..... *Dictyotangia* Fennah

(36) (35) Vertex not longer in middle line than broad across base ..... (37)

(37) (38) Vertex as broad as long in middle, lateral margins of frons not meeting lateral margins of vertex, a broad callus on anterior margin of vertex ..... *Aripoa* Fennah

(38) (37) Vertex broader than long, lateral margins of frons meeting lateral margins of vertex, anterior margin of vertex not callussed *Neotangia* Melichar

(39) (40) Submarginal carinæ of pronotum obsolete, represented only by a hump, species about 6 mm. long, tawny, marked with spots of darker brown ..... *Tangidia* Uhler

(40) (39) Submarginal carinæ of pronotum very sharp, arcuate, species about 8.6 mm. long, uniformly pale green ..... *Dioxyomus* Fennah

Ladella Stål

Stål 1859 *Berl. Ent. Zeit.* 3: 319. Haplotype, *Monopsis pallida* Wlk.

Ladella pallida (Wlk.)

Monopsis pallida Walker 85. List Hom. 2: 325.

The figures were kindly made by Mr. W. E. China from the type. It is very distinct from the Puerto Rican species identified as *Monopsis pallida* by Stål and figured

by Melichar (1914 *Ver. Nat. Ver. Brunn* 53: 106). The latter species, based on Stål's labelled specimen in the Berlin collection, requires a new name, for which *Ladella ståli* is now proposed.

Tangella Metcalf and Bruner

Metcalf and Bruner 1930 *Psyche* 37, 4: 397. Orthotype *Tangia kraatzi* Stål *Berl. Ent. Zeit.* 3: 318.

Tangella schaumi (Stål)

Tangia schaumi Stål 1859 *Berl. Ent. Zeit.* 3: 318.

Male. Length, 5.6 mm.; tegmen, 4.9 mm.

Vertex 3.3 times as broad as long in middle line, medially carinate, carina broad, obsolete at apex, simple at base; frons in middle line 1.5 times as long as broad, a broad callus across basal margin, median carina rather broad. Pronotum with disc large, carinæ stout, two carinæ at each lateral margin between eye and tegula; mesonotum relatively long, lateral carinæ of disc parallel in basal half. Tegmina with costal area broad with about 14 transverse veinlets, nodal line straight, Sc + R fork distad of M fork which is distad of Cu 1 fork, none of these veins forked again before nodal line, membrane with five or six irregular ranks of transverse veinlets, about 16 cells adjoining apical margin between node and apex of clavus. Post-tibiæ with three spines.

Anal segment relatively narrow, each lateral angle produced into a spatulate vertical lobe. Ædeagus laterally flattened, upcurved distally, a long spine lying below it on left, bent across to right and curved upward at apex, a group of four processes at apex of ædeagus, the basal process sinuate and spinose, the lateral flattened, symmetrical, pointed distally, the median acicular.

Redescribed from a male taken, along with a nymph, on Jost Van Dyke (Feb. 18, 1944).

Tangyria Uhler

Uhler 1901 *Proc. Ent. Soc. Wash.* 4.: 512. Haplotype, *Tangyria frontalis* Uhl.

Tangyria frontalis Uhler

Uhler 1901 *loc. cit.:* 512.

The figures, made by the writer from a female specimen from Port au Prince, Haiti, in the U. S. National Museum bearing Uhler's label, are published to facilitate identification of this genus.

Amaclardea Muir

Muir 1931 *Ann. Mag. Nat. Hist.* (10) 7: 301. Orthotype, *Amaclardea gowdeyi* Muir.

Amaclardea gowdeyi Muir

Muir 1931 *loc. cit.:* 302.

The figures were made by Mr. China from the type. The genus has not yet been reported outside Jamaica.

Neurotmeta Guérin-Méneville

Guérin-Méneville 1856 Hist. Fisica. Homopt.: 180. Logotype, *Neurotmeta sponsa* Guérin-Méneville.

Neurotmeta viridis (Wlk.)

Monopsis viridis Walker 1851 List Hom. 2: 325.

Ædeagus with two short spines closely approximated and directed caudad lying adpressed to ventral surface, the spine on left slightly curved laterad at apex; apical portion of ædeagus membranous, with a broad opening on right side, an aciculate porrect sclerotised and pigmented spine near dorsal margin directed caudad, a broad tapering process near ventral margin on right, rather flattened, somewhat sclerotised but not pigmented, curved dorsad distally, acute at apex.

The Lesser Antillean representatives of *Neurotmeta* agree with the species before the writer in all adult structures examined, with the exception of the ædeagal armature, which differs considerably in detail, although conforming to a standard basic pattern of two or three ventral spines along the ventral margin, and from one to four processes directed caudad on the apical membranous portion.

One male and four females and a nymph taken by the writer on *Coccoloba uvifera,* Virgin Gorda (Feb. 11,

1944), and one female and two nymphs on the same host, Tortola (Feb. 21, 1944). Walker's type from St. Thomas is a female, and the above assignment requires confirmation.

Colgorma Kirkaldy

Kirkaldy 1904 Ent. 37: 279. Orthotype, *Achilus dilutus* Stål.

Colgorma diluta (Stål)

Achilus dilutus Stål 1859 Eugen. Resa. 4: 271.

This genus superficially resembles the following, but is readily separated by the tribal character of a relatively long mesonotum. The frons of the type species is longer than broad (1.3: 1) and medially longitudinally tumid rather than carinate.

Tangiopsis Uhler

Uhler 1901 *Proc. Ent. Soc. Wash.* 4: 512. Haplotype, *Tangiopsis tetrastichus* Uhler.

Tangiopsis tetrastichus Uhler

Uhler 1901 *loc. cit.*: 513.

The figures are of the Haitian type in the U. S. National Museum, and are given merely to illustrate the differences between *Tangiopsis* and *Colgorma,* as no material of either genus is to hand from the Virgin Islands.

Acanaloniidæ

Acanalonia Spinola

Spinola 1839 *Ann. Soc. Ent. France.* (1) 8: 447. Haplotype, *Acanalonia servillei* Spin.

Acanalonia depressa Melichar

Melichar 1901 *Ann. K. K. Nat. Hist. Hofmus* 16, 3: 190, pl. 1, fig. 6.

Ædeagus submembranous, not pigmented, a broad fold laterally on each side near base, narrowing distally into a ribbon-like process which recurves at apex and lies below ædeagus to its base, giving off a small S-shaped spine

laterally, and truncate at apex; remaining portions as figured.

Two males taken by the writer on Jost Van Dyke (Feb. 18, 1944). These specimens differ from Melichar's description and figure only in the profile of the head. According to Dr. Paul Oman, material from St. Thomas and St. Croix differs from the Puerto Rican *A. brevifrons* Muir in being smaller, and having the vertex more sharply declivous, the portion of the head in front of the lateral frontal carinæ shorter, the costal margin of the tegmina more strongly curved and the anterior portion of the apical margin more broadly rounded. The male genitalia of the specimen before the writer are very close to those of *A. impressa* Metc. and Bruner. The species is evidently polytypic and the taxonomic relationship of its members might be most appropriately expressed by regarding *brevifrons* and *impressa* as geographical subspecies.

Issidæ

Thionia Stål

Stål 1859 *Berl. Ent. Zeit.* 3: 321. Logotype, *Issus longipennis* Spinola 1839 *Ann. Soc. Ent. France* (1) 8: 348.

Thionia argo sp. n.

Male. Length, 5.8 mm.; tegmen, 4.3 mm. Female. Length, 6.7 mm.; tegmen, 5.0 mm.

Vertex broader than long in middle line (1.5: 1), slightly depressed, anteriorly transverse, posteriorly angulately excavate, frons very slightly longer than broad, median carina most prominent in basal half, four callosities on each side near margin, lateral discal carinæ visible only near base where they curve to unite at middle. Posttibiæ bispinose.

Fuscous; all carinæ and margins, parallel oblique striæ on clypeus, minute speckling on frons, vertex, pro- and mesonotum, and sometimes a transverse bar in basal third of frons, and abdominal ventrites testaceous; sides of head on concealed surface behind eyes and a round spot in each lateral field of pronotum piceous. Tegmina

translucent, testaceous, marbled with fuscous, though not in basal third of corium, three oval spots in cell R, a similar spot basally and a fainter spot distally in cell M 3 + 4 fuscous-piceous. Veins fuscous-piceous, paler in clavus. Transverse veins mostly pallid.

Anal segment of male elongate-rhomboidal, convex-truncate at apex, anal foramen near middle. Ædeagus moderately short, tubular, curved upward distally, dorsal margin with an eminence on each side at base and at middle, the latter bearing a short tooth directed caudad, a pair of long spines arising laterally at middle, curved outward, cephalad and finally mesad; ædeagus distally reflected anteriorly in the form of a trough, striate and membranous. Genital styles short and stout, subtriangular, expanding distally; apical process broad, hollowed out on its anterior surface, minutely pointed at apex and with a crescentic plate attached laterally near its base.

Anal segment of female very long distad of anal foramen, deeply rounded at apex.

Nymph with vertex relatively shorter than in adult, the pro- and mesotibiæ distinctly foliate and post-tibiæ four-spined.

Described from four males and seven females and four nymphs taken by the writer on Jost Van Dyke (Feb. 18, 1944). This species may well prove to be closely allied to the Puerto Rican *Thionia borinquensis* Doz. and the Jamaican *Thionia impressa* Melichar, though it differs markedly in the coloration of the tegmina. Holotype ♂ and allotype ♀ at Mus. Comp. Zool. No. 27819.

Flatidæ

Parthenormenis gen. nov.

Frons as long as broad, apical margin little shorter than basal, lateral margins shallowly arcuate; vertex obsolete. Pronotum anteriorly roundly convex, posteriorly subangulately concave, a distinct broad callus along anterior margin near middle, a slight median sulcus posteriorly; mesonotum not inflated with median carina indicated only at base, lateral carinæ feebly present

throughout; post-tibiæ bispinose, abdomen dorsally rounded, not conical. Tegmina moderately expanding distally, costal margin straight distad of middle, apical margin straight, apical angle rounded, sutural angle rectangulate, rather abruptly rounded, costal area slightly narrower than costal cell one third from base, costal veinlets shorter than apical veins, apical veins mostly forked, apical line slightly irregular but distinct, joining costa anteriorly, nodal line indistinguishable, Sc simple to apex, R forking near middle of tegmen, M forking slightly basad of R fork, Cu 1 forking basad of M fork. Wings with R simple to apex, M with two branches, Cu 1 with five branches.

Anal segment of female broadly ovate, indented at apex, anal foramen relatively small. Ovipositor with third valvulæ each armed with nine or ten stout spines in two rows, with a single spine situated on inner face remote from margin.

Type species, *Parthenormenis sanctæ-ursulæ* sp. n.

Parthenormenis sanctæ-ursulæ sp. n.

Female. Length, 6.0 mm.; tegmen, 6.2 mm.

Testaceous-yellowish; pronotum and mesonotum clouded fuscous, legs faintly so; abdomen pallid, sclerotised portions of genitalia piceous. Tegmina translucent, brownish, anterior half of costal membrane and transverse veinlets just basad of apical line of cross-veins pallid; base of costal cell, except at margin, and base of clavus deeply infuscate. Veins on corium deeply fuscous, on membrane concolorous. Wings infuscate, veins dark fuscous. Insect in life powdered brownish or pruinose, somewhat variegated.

Ovipositor with third valvulæ armed on posterior margin with a row of five or six stout teeth; basad of this an inner row of two or three teeth, and a single tooth still further basad on inner face.

Described from a single female taken by the writer at 1,000 ft., Tortola (Feb. 20, 1944). Type at Mus. Comp. Zool. No. 27930. The genus, to which at present only this species is referred, is distinguished by having the

apical margin of the tegmina transverse, not oblique, and the sutural angle boldly, though not sharply, rectangulate, and by the armature of the third valvulæ. It differs from *Ormenoides* Mel. in the shape of the frons, and from *Ormenana* Metc. in that of the tegmina.

Melormenis Metcalf

Metcalf 1938 *Bull. Mus. Comp. Zool.* 82, 5: 395. Orthotype, *Cicada quadripunctata* F.

Melormenis quadripunctata (F.)

Cicada quadripunctata Fabricius 1794 Ent. Syst. 4: 30.

Ten males and eight females, Jost Van Dyke (Feb. 18, 1944), twenty-six males and sixteen females, Tortola (Feb. 14–17, 19–24, 1944), three males, Virgin Gorda (Feb. 11, 1944).

Petrusa Stål

Stål 1869 Hem. Fabr. 2: 111; (1866 Hem. Afr.: 237). Haplotype, *Cicada marginata* Brunnich.

Petrusa marginata (Brunnich)

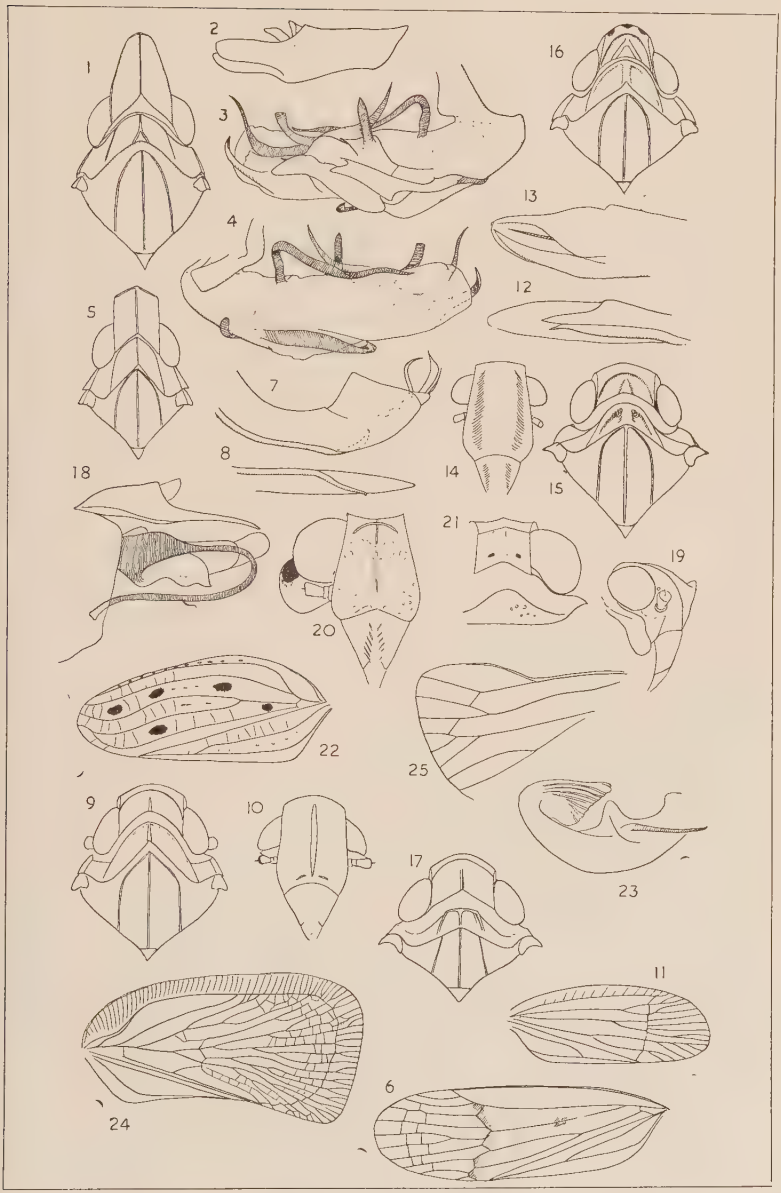
Cicada marginata Brunnich 1767, in Linné Syst. Nat. 1 (2): 710.

Four males and ten females taken by the writer on Jost Van Dyke (Feb. 18, 1944), six males and seven females, Tortola (Feb. 14–17, 1944), eight males and four females, Virgin Gorda (Feb. 11, 1944). Both color forms are represented in each batch of material.

Explanation of Plate 4

1. *Ladella pallida* (Wlk.) vertex, pronotum and mesonotum.
2. idem, anal segment of male, ventrolateral view.
3. idem, ædeagus, right side.
4. idem, ædeagus, left side.
5. *Amaclardea gowdeyi* Muir, vertex, pronotum and mesonotum.
6. idem, tegmen.
7. *Tangella schaumi* (Stål), ædeagus, left side.
8. idem, ædeagus, ventral view.
9. idem, vertex, pronotum and mesonotum.
10. idem, frons and clypeus.
11. idem, tegmen.
12. *Neurotmeta viridis* (Wlk.), ædeagus, ventral view.
13. idem, ædeagus, right side.
14. *Colgorma diluta* (Stål) frons and basal part of clypeus.
15. idem, vertex, pronotum and mesonotum.
16. *Tangyria frontalis* Uhl., vertex, pronotum and mesonotum.
17. *Tangiopsis tetrastichus* Uhl., vertex, pronotum and mesonotum.
18. *Acanalonia depressa* Mel., anal segment and ædeagus, left side.
19. idem, head in profile.
20. *Thionia argo* Fenn., frons and clypeus.
21. idem, vertex and pronotum.
22. idem, tegmen.
23. idem, ædeagus, left side.
24. *Parthenormenis sanctæ-ursulæ* Fenn., tegmen.
25. idem, apical portion of wing.

Psyche, 1949 Vol. 56, Plate 4



Fennah—Fulgoroidea

A NEW GENUS AND SPECIES OF THERIDIIDÆ FROM EASTERN TEXAS (ARANEÆ)[1]

By Elizabeth B. Bryant

Museum of Comparative Zoology

Among some material sent me several years ago, by Miss Sarah E. Jones collected by her at Dallas, Texas, was a small male spider which particularly attracted my attention. Tentatively I placed it in the little known genus *Umfila* Keyserling, (Theridiidæ), based on a single species from Brazil. Recently, I had the pleasure of showing it to Dr. Alexander Petrunkevitch of Yale University. He kindly called my attention to characters which certainly preclude it from that genus and suggested that a new genus be erected for it.

Genus **Mufila** gen. nov.

Cephalothorax about as wide as long, anterior margin broadly convex, longer than the posterior margin, cephalic portion rather high, thoracic groove long, in a depression; *eyes* closely grouped, differing little in size, anterior row slightly recurved, a.m.e. largest of the eight, posterior row almost straight, lateral eyes touching; *quadrangle* wider in front and not as high as wide; *clypeus* very high, about three times the height of the quadrangle; *mouth parts* weak; *sternum* oval, three-quarters as wide as long, anterior margin rounded, posterior margin pointed and extending between the fourth coxæ; *abdomen* narrow, pointed above the spinnerets, with a corneous ridge at the base which connects with a large epigastric scutum; *legs*, 4–1–2–3, with no spines, a tarsal comb of 6 to 7 curved bristles on the fourth metatarsus; *palpus* large, patella short and much rounded on the dorsal side, tibia small. Female not known.

[1] Published with a grant from the Museum of Comparative Zoology at Harvard College.

Genotype: *Mufila texana* spec. nov.

The genus *Mufila* probably belongs with the *Asageninæ,* as a remnant of a stridulating organ remains on the base of the abdomen. It differs from the other genera in that sub-family by the very broad cephalothorax, the high clypeus and the closely grouped eyes that vary little in size. It differs from the genus *Umfila* Keys. by the cephalothorax which is as wide as long, the very high clypeus, the pointed sternum, and the lack of a dorsal scutum on the abdomen.

Mufila texana spec. nov.

Figure 1

Male. Length, 2.5 mm., ceph. 1.2 mm. long, 1.2 mm. wide, abd. 1.4 mm. long, 0.7 mm. wide.

Cephalothorax golden brown, shining, with a few short hairs below the a.m.e., almost circular, anterior margin strongly convex, and wider than the posterior margin, sides rounded, almost flat, cephalic portion highest, thoracic groove long and deep, in a depressed area; *eyes* closely grouped, area slightly elevated, each eye heavily ringed with black, and not varying much in size, anterior row slightly recurved, a.m.e. largest of the eight, separated by about a diameter and from the a.l.e. by a little less, posterior row the same length as the anterior row, almost straight, eyes equidistant and subequal, p.m.e. separated by little more than a diameter, lateral eyes touching; *quadrangle* wider in front and not as high as wide; *clypeus* below a.m.e. almost equals three times the ocular area, with a stripe of short dark hairs directed upward, from the margin to the a.m.e.; *mandibles* dark, small and vertical, weak, fang short; *labium* very narrow, more than twice as wide as long, suture between the labium and sternum very indistinct; *maxillæ* yellow, shaded with gray, more than twice as long as the labium and strongly inclined; *sternum* bright yellow, darker about the margins, slightly convex, three-quarters as wide as long, anterior margin rounded, posterior margin pointed, first pair of coxæ widely separated, fourth pair

of coxæ separated by more than a diameter and the sternum carried between; *abdomen* oval, pointed above the spinnerets, two-thirds as wide as long, brown with five white spots, at the base a corneous line which may be the remnant of a sound organ, but no cross ridges on the cephalothorax remain, many long scattered hairs from corneous pits, venter pale, with a strongly marked epigastric scutum that covers the basal third and connects

Figure 1. *Mufila texana* spec. nov. ♂. A, Dorsal view. B, Left palpus, lateral view.

with the corneous ridge on the dorsum, a broad dark ring surrounds the spinnerets which may be chitinized, spinnerets small, posterior spiracle probably opens directly anterior to the spinnerets, two small chitinized ovals about the middle of the venter, may be muscle spots; *legs*, $\frac{1 \quad 2 \quad 3 \quad 4^*}{2.0 \; 1.8 \; 2.0 \; 2.6}$, rather short, pale yellow, with the

* The leg formula used was suggested by Mrs. Harriet Frizzell and modified by Dr. Alex. Petrunkevitch in "A Study in Amber Spiders," Trans. Conn. Acad., 1942, 34, p. 137. The lower figure represents the length of the leg divided by the length of the carapace.

distal joints darker, femora with a dark anterior lateral line, much fainter on the posterior pairs, all joints with rows of small hairs, no spines, tarsal comb of 6 or 7 curved bristles on the fourth metatarsus; *palpus,* large for the size of the spider, shorter than the cephalothorax, femur pale and bent, other joints dark, patella short and much swollen on the dorsal side, tibia very small and pressed close to the cymbium, palpal organ short, barrel-shaped, embolus probably a short black spine at the tip.

Holotype: ♂ Texas; Dallas, on the outside of a house, 9 July 1936, (Jones); in MCZ.

A Correction.—In *Pysche,* Vol. 56, No. 1, I published a synonymic list involving some species in *Pseudomyrma* and other genera of ants (pp. 41–49). On page 43 occur two errors, the first of which was made at the printing office *after* the page proof had been read by both author and editor. Page 43, line 5, should read "*Pseudomyrma spinicola* subsp. *infernalis*", not "subsp. *sclerosa.*" Line 9 on the same page mistakenly omits an "e" from "subsp. *scelerosa*", the latter being Wheeler's original spelling. Enzmann's transcription of the name was "*sclerosa*".—W. L. Brown, Jr., Biological Laboratories, Harvard University.

A NOTE ON *PHEIDOLE* (*MACROPHEIDOLE*) *RHEA* WHEELER (HYMENOPTERA: FORMICIDÆ)

By Robert E. Gregg

Department of Biology, University of Colorado

This species was described by Wheeler (1908), from a single, very large, deälated female collected at Nogales, Arizona. Though later synonymized (Wheeler, 1915), with *Pheidole fimbriata* Roger of tropical America, M. R. Smith (1943), has reviewed in detail the status of *Pheidole rhea,* drawing pertinent distinctions between it and *fimbriata.* He has shown that *rhea* deserves specific rank, and has provided a description of both the soldier and the worker castes.

Through the assistance of Mr. L. F. Byars and Mr. J. B. Zuck, I have received a large series of specimens of *Ph. rhea* from the type locality, representing all castes with the exception of the males. The ants were obtained at different periods from the same colony located near the top of a dry hillside on Washington Drive, Nogales, Arizona. The site was characterized by very rocky soil originally covered with coarse desert grasses and weeds. Fortunately, my wife and I were able to visit the spot in April, 1948, and collect additional material before the nest was completely destroyed by landscaping. It was first discovered under a stone, but had moved after being disturbed. The total number of specimens secured are as follows, according to caste: 201 soldiers, 262 workers (media), and 274 workers (minima). The species is highly polymorphic, and for convenience several size classes of individuals are grouped as media, although no sharp gaps are detectable in the series from largest to smallest individuals. One deälated female was captured by Mr. Zuck from under a stone, and though isolated, is believed to have come from the same nest as

the above series. Dates on which the ants were obtained are March 2, 1947 (wingless female), June 18, 1947; March 29, April 10, April 14, and April 25, 1948. Besides these specimens, a few soldiers and numerous workers have been added to our collection from Colossal Cave State Park, southeast of Tucson, Arizona, which we visited on April 20, 1948. The ants were collected as they foraged for the seeds of various desert plants near the entrance to the cave.

On comparing my material with the detailed descriptions published by Smith for the soldier and worker of *rhea,* it seemed that a new form of the species might be recognized, especially in view of the much greater size of the soldiers in my samples and certain differences in the queen. However, after studying specimens from the Pinal Mountains and the Santa Catalina Mountains of Arizona (sent respectively through the courtesy of the United States National Museum and the Museum of Comparative Zoology), the variability of the species noted by Smith is fully confirmed, and it is impossible to discern adequate bases for erecting a new subspecies at this time. Nevertheless, it is desirable to record certain features of my Nogales specimens which depart from the published accounts.

The great variability and continuous gradation in size from the smallest to the largest individuals makes it difficult to distinguish *rhea* from other species if only the smaller intermediates are available, although its long epinotal spines should suffice. The upper size limit of the soldier has been uncertain, and Smith gives 5.5 mm. as the size for the soldier in his description. He does mention, though, an unusual soldier from Escuinapa, Mexico, which is 8 mm. The soldiers which I have measured reach 9.8 to 10.2 mm. in the largest size class, and may be regarded as the probable upper limit since they approach the queen which is 14.3 mm. (Wheeler). This increase over the 8 mm. linear dimension noted by Smith, is accentuated by the allometric growth in proportions of the head which accompany it, rendering the soldiers quite huge. The width of the soldier head varies from

3.3 mm. to 3.7 mm., while its length, excluding the mandibles, varies from 3.6 mm. to 4.0 mm. All possible intermediates connect the soldier with the smallest worker which measures 3 mm. (Smith), or 4 mm. among my material.

Ph. fimbriata is furnished with tufts of short, dense, erect hairs on the under surfaces of the petiole and postpetiole, while these are absent on *rhea* (s. str.). The ants before me show a few, spaced hairs in those positions. Also, some of the intermediate sizes possess a slender, acute, erect spine on the ventral aspect of the petiolar peduncle, and others show an aborted spine, while most have only a slight elevation. The eyes of the *rhea* soldier have 15 facets, according to Smith, but my examples show only 13 to 14 facets; *fimbriata* has 11 or 12. The color of the largest soldiers and some of the intermediates is somewhat lighter than that indicated in the description, or of those received for study; it is distinctly red on the middle and posterior portions of the head, though the thorax and abdomen are brownish to black.

The single specimen of wingless female in my possession differs also from Wheeler's description of the type, and is probably another indication of the considerable variation to which the species is subject. The head is distinctly broader than long (exclusive of the mandibles), and the posterior border of the orbit is precisely at the middle of the head, rather than in front of it. The clypeus has an obvious median elevation or carina, and a broad, shallow emargination, opposite to the condition of these structures in Wheeler's specimen. The thorax through the wing insertions is as broad or broader than the head through the posterior corners (narrower in *rhea*), the petiole is subquadrate rather than suborbicular, and the mesonotum is not shagreened, but very smooth and shining with a few striations near the middle of the posterior border and on the sides of the anterior border. The gaster is distinctly shagreened and feebly shining. In size, this ant is 14 mm., and therefore not quite as long as Wheeler's specimen.

In view of the fact that Wheeler described *rhea* from a lone female, the marked variability of the other castes subsequently obtained, and the lack of females definitely known to be from the same colony as the series of soldiers and workers in the Nogales nest, it is advisable to withhold description of a new form unless indicated otherwise by additional material.

Literature Cited

Smith, M. R.
1943. *Pheidole* (*Macropheidole*) *rhea* Wheeler, a valid species. Proc. Ent. Soc. Wash., 45: 5–9.
Wheeler, W. M.
1908. The ants of Texas, New Mexico and Arizona. Bull. Amer. Mus. Nat. Hist., 24: 399–485.
1915. Some additions to the North American ant-fauna. Bull. Amer. Mus. Nat. Hist., 34: 389–421.

EPICAUTA DIVERSICORNIS AND ITS ALLIES IN THE NEOTROPICAL REGION (COLEOP., MELOIDÆ)[1]

By F. G. Werner

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Epicauta diversicornis and related species form a closely-knit group which can be defined as possessing the following characters in the male. Posterior tibiæ with a row of short teeth internally at the apex. First two antennal segments enlarged, denuded except for scattered erect setæ, and shiny, the first not excavated externally at the tip. Anterior tibiæ with a single spur and anterior tarsi with the first segment flattened, usually shiny and expanded.

All of the known species in the group are moderately slender and almost uniform in width (see figure in Champion, 1892). Except for size and color there is great similarity in all the species. None has been seen less than ten millimeters long or more than twenty. Females can be known by the distinctive shape and usually can be placed by color and locality. All the species have a small scutellar and humeral spot on the elytra when fully marked. There are several species outside the group which have females similar to those in the group so that caution should be observed when making determinations.

Attention should be called to the variation that occurs in the width of the first two antennal segments of the male. An example is shown in figures 4 and 5, both of *diversicornis*. This much variation occurs also in *isthmica* and probably in the other species with these segments flattened.

All the known species of *Epicauta* with the posterior tibial comb are restricted to the region from Southwestern

[1] Published with a grant from the Museum of Comparative Zoology at Harvard College.

United States to Guiana and Colombia. The *diversicornis* group is interesting in that it contains the only species known to occur in South America.

A key to the males of the known species follows. Except where noted, all specimens on which ranges are based have been examined by the author.

1. First antennal segment triangular in cross-section, with three almost flat surfaces 2
   First antennal segment flattened or oval in cross-section, with at most two flat surfaces 4
2. First tarsal segment slightly longer than second, with uniform sparse pubescence. Antennæ as in figure 2. Brown, clothed with cinereous pubescence, which is denser in a line down each elytron. *Mexico*: Nayarit (Tepic), Morelos (Cuernavaca), Yucatan (Chichen Itza) ..... *E. forticornis* (Haag), 1880
   First tarsal segment shorter than second, denuded, shiny 3
3. First two antennal segments equal to rest in length. Black, the elytra luteous, uniformly clothed with cinereous to luteous pubescence. *U.S.*: Texas (Val Verde Co. to El Paso Co.), New Mexico (southern), Arizona (Douglas, Sta. Catalina Mts.). *Mexico*: Nuevo Leon (Monterrey) ..... *E. polingi* Werner, 1943
   First two antennal segments longer than the rest. Brown, with the margins of the elytra paler and with paler pubescence. *U.S.*: Arizona (Maricopa Co. to Gila Co.). *Mexico*: Sonora (Imuris).
   E. liebecki Werner, 1943
   First two antennal segments shorter than the rest. Brown to luteous, with uniform cinereous pubescence. *U.S.*: Arizona (Maricopa Co. to Cochise Co.). *Mexico*: Sonora (Arizpe)
   E. arizonica Werner, 1943
4. Second antennal segment distinctly more than half as long as first. Fig. 1 and fig. 3 5
   Second antennal segment half as long as first or shorter. Fig. 4 to fig. 8. 6
5. First segment of anterior tarsi longer than second, not expanded and with at least scattered pubescence.

Antennæ as in fig. 1. Body brown, elytra luteous, with uniform pale pubescence. *Mexico*: Jalisco (Guadalajara), Nayarit (Tepic, fide Dugès), Morelos (Cuernavaca) ..... *E. humeralis* (Dugès), 1889

First segment of anterior tarsi shorter and broader than second, partly denuded and shiny. Brown, with the margins of the elytra paler and with a fringe of denser pubescence. Antennæ as in fig. 3. *Guiana* fide Erichson, *Venezuela* (Las Trincheras), *Colombia* (Amaya-Cispata Bay), *Panama* (Ft. Clayton, C.Z.) [= *Lytta intermedia* Haag, 1880]

E. flagellaria (Erichson), 1848

6. Second antennal segment distinctly longer than the following three. Fig. 4 and fig. 5. Black or dark brown, the elytra luteous. First segment of the anterior tarsi subequal to second, slightly expanded, shiny. *Mexico*: Sinaloa (Mazatlan, Venodio), Nayarit (Tepic), Jalisco (Guadalajara), Michoacan (Apatzingan), Hidalgo (Pachuca), D.F. (Mexico City), Morelos (Cuernavaca), Guerrero (Acapulco), Vera Cruz (Cordoba). [= *Macrobasis flavens* Dugès, = *Macrobasis diversicornis*, Champion, in part.]

E. diversicornis (Haag), 1880

Second antennal segment at most slightly more than equal to the following two. Fig. 6 to fig. 8. 7

7. Second antennal segment slightly longer than the following two. First segment thickened, oval in cross-section. See fig. 6. Dark brown to black, with the margins of the elytra fringed with pale pubescence. Averaging smaller than *diversicornis* and the other species in the group in its region. *Mexico*: Durango (Canelas, fide Dugès), Jalisco (Colima Vulcano), Nayarit (Tepic). ..... *E. beckeri* (Dugès), 1889

Second segment of antennæ slightly longer than the following two. First segment flattened. See fig. 7. Dark brown, with uniform pale to dark pubescence. As small as *beckeri*, usually less than 12 mm. *Guatemala* (Guatemala City), *Mexico* (Chiapas), *Salvador* (Sta. Ana). ..... *E. candèzi* (Haag), 1880

Second segment of antennæ only slightly longer

than the third. See fig. 8. Middle tarsi with a fringe of long hairs along the inside. Panama to Vera Cruz. ..... **E. isthmica** sp n.

Epicauta isthmica sp. n.

Length: 10 to 20 mm. Body black, elytra brown to luteous; legs except for tarsi, palpi, labrum, labium and clypeus luteous. Pubescence uniform, moderately dense, decumbent, cinereous to pale luteous. There is a dark scutellar and humeral spot, dark pubescence on the tarsi (some pale pubescence at the base of the first segments) and on the tips of the femora and outer edge of the tibiæ. No dark pubescence on the abdominal sternites except on the apex of the fifth. Any of this dark pubescence may be greatly reduced or even absent.

Head subquadrate; eyes prominent, transverse, excavated but moderately broad, four-sevenths as long as broad at the broadest place when seen from the side, separated dorsally by an area slightly narrower than their greatest width. Surface of head densely but finely punctured, uniformly, densely microreticulate. Antennal calluses narrow, denuded, without punctures. Median impressed line distinct down to the level of the eyes, not augmented by a denuded border. Mouth parts except for mandibles luteous. Last segment of maxillary palpi quite narrow, half as long as wide at the widest place, two-thirds from the base. Male antennæ as in figure 8 or with the first two segments broader or slightly narrower, the first two segments black to luteous. Female antennæ as in *diversicornis* but with the second segment slightly shorter than the third.

Pronotum narrower than head, one-third longer than broad. Sides roughly parallel for the basal three-fourths, then converging at a sixty degree angle, the side slightly arcuate and the change in angle not abrupt. Basal impressed line distinct. Median impressed line fine but distinct. Surface more densely punctured than on head. Scutellum black. Elytra brown to luteous, with the luteous form more prevalent in the northern part of the range.

Underside uniformly pale pubescent, except for the apical half of the fifth abdominal sternite. The apices of the abdominal sternites have a fringe of slightly denser pubescence so that they appear indistinctly margined.

Anterior tibiæ of male denuded externally, with one straight, spiniform apical spur. First segment of male anterior tarsi denuded except for a few hairs along the outer margin and apex, shiny, expanded on the inner margin, concave behind. Middle tarsi of male with a fringe of long erect black hairs along the inside. Each hair of this fringe is as long as the fourth segment. Posterior tibial spurs expanded spiniform, the outer shorter than the inner.

Holotype: ♂, Cabima, *Panama* May 28, 1911 A. Busck (USNM)

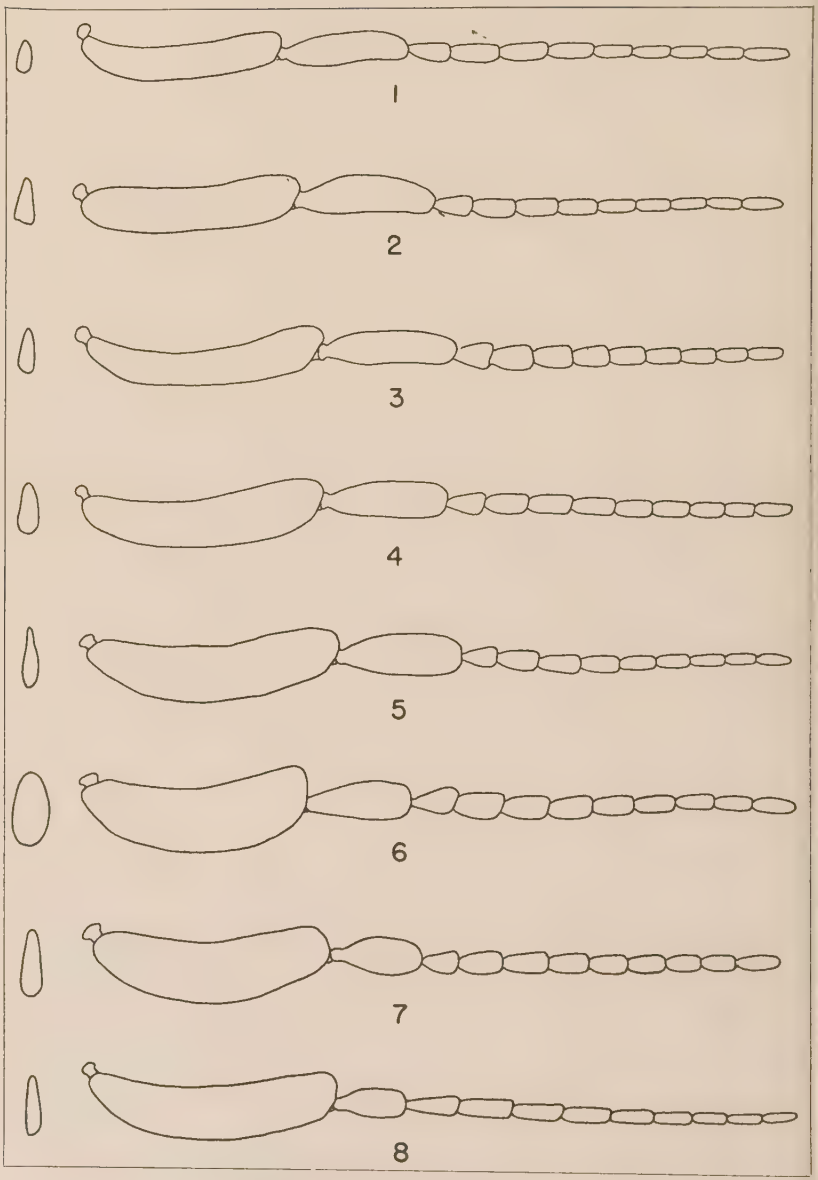
Allotype: ♀, eutopotypical (USNM)

Paratypes: *Panama:* 7♂♂, 6♀♀, topotypical (USNM); 2♂♂, Bocas del Toro (USNM); 2♂♂, 1♀, Taboga I. (USNM); 2♀♀, La Chorrera (USNM); 4♂♂, 4♀♀, La Chorrera (Cal. Ac.); 1♂, 3♀♀, St. Maria, El Real (MCZ); 2♂♂, 2♀♀, Sta. Rosa (Chic. N.H.M.); 1♀, Panama (MCZ). *Canal Zone:* 4♂♂, 3♀♀, Madden Dam (Cal. Ac.); 6♂♂, 5♀♀, Madden Dam (Cal. Ac.); 5♂♂, 2♀♀, Ft. Clayton (Cal. Ac.); 1♀, Gamboa (Cal. Ac.); 2♂♂, Ancon (Chic. N.H.M.) 1♂, 1♀, Ancon (Ohio); 1♀, Ancon (USNM); 1♀, Culebra (Ohio); 3♂♂, Barro Colorado I. (USNM); 1♂, 1♀, Paraiso (USNM); 1♂, Tabernilla (USNM); 1♀, Alhajuelo (USNM); 1♀, Canal Zone (USNM). *Costa Rica:* 3♂♂, 2♀♀, Bebedero, Guanacaste (USNM); 1♂, 1♀, Santa Elena, Guanacaste (USNM); 1♀, Guanacaste (USNM); 1♂, Sarchi (USNM); 2♂♂, 1♀, Port Parker (Cal. Ac.); 2♀♀, Costa Rica (Chic. N.H.M.). *Nicaragua:* 1♀, Managua (USNM). *Honduras:* 1♂, 1♀, La Libertad, Comay (MCZ); 1♂, San Pedro S. (Chic. N.H.M.). *Salvador:* 1♂, Santa Ana (USNM). *British Honduras:* 1♀, Punta Gorde (Parker). *Mexico:* 2♂♂, 3♀♀, La Gloria, Cardel, Vera Cruz (USNM); 2♂♂, 2♀♀, Atoyac, Vera Cruz (USNM).

Explanation of Plate 5

Male antennæ. Cross-section of first segment on left.
Fig. 1. *Epicauta forticornis* (Haag)
Fig. 2. *Epicauta humeralis* (Dugès)
Fig. 3. *Epicauta flagellaria* (Erichson)
Fig. 4. *Epicauta diversicornis* (Haag)
Fig. 5. *Epicauta diversicornis* (Haag)
Fig. 6. *Epicauta beckeri* (Dugès)
Fig. 7. *Epicauta candèzi* (Haag)
Fig. 8. *Epicauta isthmica* sp. n.

PSYCHE, 1949 VOL. 56, PLATE 5



WERNER—EPICAUTA DIVERSICORNIS

A NEW AMERICAN *AMBLYOPONE*, WITH NOTES ON THE GENUS (HYMENOPTERA: FORMICIDÆ)[1]

By William L. Brown, Jr.

Biological Laboratories, Harvard University

Amblyopone (Stigmatomma) trigonignatha new species

Figure 1

Holotype worker: Total length measured from lateral profile, mandibles included but sting excluded, 6.12 ± .10 mm.; Weber's length of alitrunk, 1.60 ± .05 mm.; maximum measurable length of the head from the center of the anterior clypeal border to a line connecting the posterior extremities of the occipital corners, 1.22 ± .005 mm.; maximum width of head, 1.05 ± .005 mm.; cephalic index, 86 ± 1; left mandible, straightline distance, when closed, from the point of contact with the anterior border of head to apex, 0.80 ± .01 mm., or, more roughly, about two thirds of the length of the head proper.

Head a little more slender than in *A.* (*S.*) *pallipes* (Haldeman), sides gently convex, greatest width at about the anterior third, slightly convergent behind and passing into the rounded occipital corners through easy curves; posterior border of head moderately but distinctly concave in outline. "Amblyoponine teeth" at the anterolateral corners of the head reduced to small, bluntly rounded tubercles which are more or less hidden in dense pilosity; this reduction much greater than in any small specimens of the *pallipes* complex I have seen. Clypeus dorsally weakly convex, its anterior apron rather narrow, with a very feebly convex anterior border which appears straight at some angles of view. This apron is rather abruptly terminated on each lateral extremity by an angle which marks the boundary between

[1] Published with a grant from the Museum of Comparative Zoology at Harvard College.

it and the medial wall of a notch which receives the acute, triangular basal mandibular tooth. Anterior margin of clypeal apron set with twelve small, regular separated denticles which are truncate, subcylindrical and not socketted on subconical tubercles as are those of *pallipes* and its subspecies, also one of these tubercles on each short lateral margin. This makes 14 denticles in all, more than in *pallipes*, all separate, smaller and more regular than in the *pallipes* complex, and with the exception of the tooth on each lateral margin, on approximately the same level. Eyes about the same size and in the same

Figure 1. *Amblyopone* (*Stigmatomma*) *trigonignatha* new species, worker, left mandible and anterior clypeal border.

position as in medium-sized *pallipes* workers, with only 3 or 4 of the facets actually pigmented in each. A faint median depression on the cephalic dorsum at about the midlength evidently represents a vestige of the anterior ocellus.

Mandibles distinctive; considering only the basal halves each forming an obtuse triangle, with the inner border of the basal part just before the midlength distinctly angulate at somewhat more than a right angle; this angle, which is capped by two massive, blunt double teeth partially fused at their bases, marks off fairly distinct basal and apical borders. The basal border bears two rows of teeth, a dorsal and a ventral; there are two teeth in each row, the ventral ones triangular,

acute, the dorsal low and rounded and alternating with the ventral ones so that all may be seen from a position directly dorsad. The more basal of the two ventral teeth is the larger, and this fits into the notch mentioned above just lateral to the clypeal apron. The apical border distad of the two large double teeth at the angle with two more blunt, massive double teeth, which are well separated; these followed by a smaller acute tooth just before the acute, stoutly spiniform apex. Seen from the side, the mandibles are nearly twice as thick dorsoventrally as in *pallipes,* and not quite so strongly projecting anteriorly; the apices somewhat recurved.

The alitrunk is very similar to that of small *pallipes* workers, but perhaps very slightly more slender; the rounded lamellæ at the base of the propodeal declivity smaller. The petiolar node is very slightly longer than broad seen from above, much as in smaller workers of *pallipes.*

Sculpture throughout less pronounced than in *pallipes,* the head and thorax shining to the naked eye. Seen at very high magnifications, the dorsum of the head is sown with very small, regular punctures which are separated from each other by plane, shining surfaces which do not form the fine longitudinal costulation or rugulation seen in the forms of *pallipes.* Clypeus very indistinctly and irregularly longitudinally striate; mandibles striate longitudinally as in *pallipes,* but less regularly and distinctly. Sculpture of dorsum of alitrunk much like that of the head, but the sides posteriorly are longitudinally striate as in *pallipes;* propodeal declivity with a large central area devoid of transverse striæ and smooth and shining.

Color rather uniform medium ferrugineous. Other characters of structure and pilosity within the range of variability shown by small to medium-sized *pallipes* workers from the eastern United States. Male and female unknown.

Holotype worker, Museum of Comparative Zoology, Harvard University, Catalog No. 28231. Collected at Concord, North Carolina, by Dr. D. L. Wray, who sifted

it from leaf mold by means of the Berlese funnel. One *Stigmatomma pallipes* worker was also taken by the same funnel, a fact which has caused me to examine a large quantity of *pallipes* specimens in making sure that the new species cannot be an extreme example of the very variable common species. I have found it very generally true that closely related ant species often occur in the same Berlese batch, especially with forms living in or beneath the soil cover or in rotten logs, so the proximity of the two forms in collecting need not trouble us too much. The differences are so striking that I cannot consider *trigonignatha* as merely an abnormal specimen of *pallipes,* and the sting rules out the possibility of it being an ergatoid male like those found in *Ponera.*

Amblyopone (*Stigmatomma*) *pallipes* (Haldeman)

Typhlopone pallipes Haldeman, 1844, Proc. Acad. Nat. Sci. Phila., **2**: 54, worker.

Stigmatomma pallipes subsp. *montigena* Creighton, 1940, Amer. Mus. Novit., No. 1079, p. 7, figs. 6 and 8.

The remainder of the synonymy is given in Creighton's paper cited above on page 3. The correct spelling of Provancher's name is *Arotropus binodosus,* not "*Atropus binodus,*" as Creighton has it.

Since Dr. Creighton's paper describing the form *montigena* was published, I have been accumulating *Stigmatomma* specimens year by year from various states, principally Pennsylvania, North Carolina and Tennessee. I have looked over specimens from the Pennsylvania Alleghenies (where *Stigmatomma* is often the most abundant or *only* ant occurring in very wet mountain valleys in which rhododendron and hemlock form the main cover) with the hope of finding *montigena* specimens. I succeeded in finding some specimens with a rather convex anterior clypeal border, but these were often mixed in the same colony with specimens having the border nearly straight. Two specimens from rich, low beech woods in a city park in Philadelphia, however, showed very marked convexity of the clypeal border to a degree comparable with the *montigena* types; since these latter

specimens were taken in very close association with several other workers having much less convex borders, I believe that the geographical basis of this subspecies becomes very weak. The length of the funicular joints, the sculpture, and the presence or absence of a tubercle distad of the basal tooth are also variable characters in both Pennsylvania and North Carolina specimens, and the first of these auxiliary characters is subject to differences brought about by the contraction of funicular joints into one another to different degrees at death in alcohol. In conclusion, Dr. Creighton's material, while reasonably abundant, just happened to show a distributional pattern which led naturally to the erection of a subspecies. The additional material now available shows so many contradictory features that *montigena* cannot be retained as a separate form any longer.

Amblyopone (*Stigmatomma*) *subterranea* Creighton

I regard this form for the present as a good species, though it was described as a subspecies of *pallipes* in Creighton's 1940 paper (p. 8, fig. 4). Though the difference from *pallipes* is very slight, it seems constant in the specimens from Kansas, and the specimen from Austin, Texas, may also be considered as of this form instead of as a *pallipes-subterranea* intergrade. Buren has reported this form from Iowa, so the range appears wide in the plains states. Specimens of *pallipes* from Illinois and western Tennessee do not seem to intergrade with *subterranea,* and no true intergrades seem yet to have been reported from anywhere, with the exception of the single doubtful specimen from Texas. Though it is true, as Creighton states in his description, that most of the sculpture of *subterranea* is rather light, the Kansan and Texan specimens show rather characteristically strong longitudinal rugulæ in the area just behind the frontal region of the dorsum of the head which are not quite like those of *pallipes.* The structure of the anterior clypeal border seems rather distinct and diagnostic also.

Though Creighton regarded the single Arizona record of *Stigmatomma* as doubtful in 1940, there have been

several collections made in that state by Mr. R. G. Wesson since Creighton's writing. Dr. Creighton has suggested to me in a letter that these specimens may provide a basis for reviving Wheeler's Arizona race, but since these collections are not presently available to me, I shall provisionally accept the synonymy of this form under *S. pallipes pallipes.*

Subgenera of the genus *Amblyopone* Erichson

In 1934, Mr. John Clark of Melbourne[1] adopted Wheeler's earlier suggestion[2] that *Stigmatomma* Roger, *Fulakora* Mann and *Xymmer* Santschi were only subgenera of *Amblyopone* Erichson. On the basis of workers alone, it is hard to see why any of these names should be maintained if the known world fauna of the complex is considered as a whole. An examination of the venation of the winged males and females of several species referred at present to *Amblyopone* (*aberrans* Wheeler, several forms of the *australis-cephalotes* complex) and to *Stigmatomma* (*rothneyi* Forel, *pallipes* (Haldeman), *pallipes oregonensis* Wheeler) reveals a difference which, if consistent in the two groups, will serve to separate them satisfactorily as subgenera; I should not be surprised to find this character intergradient and thus not any longer separatory when more of the males and females are known. In *Stigmatomma,* the second free abcissa of Rs (Rs FA 2), the vein which splits the cubital cell longitudinally, is present in its entirety (somewhat weak in *rothneyi*), while in all the *Amblyopone sensu stricto,* this vein is entirely gone and the cubital cell resulting is very large and undivided. Furthermore, the venation of the *Stigmatommas* from the United States (not *rothneyi*) is more primitive in that the first free abcissa of M (M FA 1), the posterior part of the vein persistently called the "basal vein," is lined up or nearly lined up with crossvein cu-a, a condition characteristic of the Myrmeciini and also of at least some *Mystrium* Roger and *Myopopone* Roger.

[1] Clark, 1934, Mem. Nat. Mus. Victoria, No. 8, p. 27.
[2] Wheeler, 1927, Proc. Amer. Acad. Arts & Sci. *62:* p. 1.

I have not seen any winged forms of *Fulakora* Mann; this genus or subgenus cannot at present be separated from *Stigmatomma,* since the prime character, approximation of the frontal carinæ, is intermediate through to *S. williamsi* Wheeler (Philippines) in at least two Australian forms of *Fulakora* described by Clark (*punctulata, gracilis*). *Williamsi* and *silvestrii* Wheeler (Japan) form a very close series connecting forms like *punctulata* with those like *denticulata* Mayr and other "typical" *Stigmatomma.* In the absence of evidence to the contrary, I propose that the name *Fulakora* Mann be considered a synonym of *Amblyopone* (*Stigmatomma*).

Two synonyms were unwittingly created by Wheeler (see synonymy below) when he stated that he thought the use of Clark's names, proposed *in lit.* at an earlier date, to be "inadvisable." Both names were put in print, with genotypes stated. According to present practice as employed by many systematists, these names are available and in force, a fact pointed out to me by my friend, Mr. Floyd G. Werner. It appears best to list them formally as synonyms. The arrangement below shows my conclusions as to the relationships of the names discussed above. For fuller synonymy, references can be found in Emery's section on the Amblyoponini in the Genera Insectorum.

Genus *Amblyopone* Erichson

Erichson, 1841, Arch. Naturg., **8**: 254, 260.

Neoamblyopone Wheeler, 1927, Proc. Amer. Acad. Arts and Sci., **62**: 1.

Protamblyopone Wheeler, Idem., p. 1.

As far as I can see, there is only one valid subgenus in addition to *Amblyopone* (s. str.):

Subgenus *Stigmatomma* Roger

Roger, 1895, Berlin. Ent. Zeitschr., **3**: 250.

Stigmatomma (*Xymmer*) Santschi, 1914, Boll. Lab. Zool. Portici, **8**: 311.

Ximmer Emery, 1919, Ant. Soc. Ent. Belg., **59**: 106, as subgen. of *Stigmatomma.*

Fulakora Mann, 1919, Bull. Mus. Comp. Zool., **63**: 279, subgen. of *Stigmatomma*.
Amblyopone (*Xymmer*) Clark, 1934, Mem. Nat. Mus., Melbourne, No. 8, p. 27.
A. (*Stigmatomma*) Clark, 1934, Idem., p. 27.
A. (*Fulakora*) Clark, 1934, Idem., p. 27 *et suiv.*

Since both Santschi and Emery have shown (works cited in synonymy) that Santschi's *Xymmer muticum* is connected to *Stigmatomma* through *A.* (*S.*) *belli* Forel, I can see no reason for retaining *Xymmer* as a separate subgenus any longer.

NORTH AMERICAN MENOPONIDÆ (MALLOPHAGA). III; NOTES ON SOME OF KELLOGG'S TYPES

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Kellogg in his numerous papers on Mallophaga described many new North American species. The taxonomic importance of the male genitalia was unknown to him, and a large number of his host records have been proven incorrect. The latter item, particularly, has led to great confusion; the only solution has been to remount and examine his type specimens.

His types in many instances have proved to be immature specimens of known species. For such instances indicative of incorrect host designation, records of the correct host with the same date and locality information can be found leaving little doubt that the hosts were not kept separated in the game bag.

Hopkins has presented an interesting discussion on synonymy of Mallophagan names, and the author agrees with his views. The purpose of this paper is not to discuss the validity of certain forms sometimes referred to the names listed, but the validity of those names.

The author wishes to acknowledge the kindness of Dr. G. F. Ferris in lending the Stanford University Collection containing V. L. Kellogg's type material, and of Mr. G. H. E. Hopkins of the Tring Museum and Miss Theresa Clay of the British Museum for their help and criticisms.

Colpocephalum abbotti Kellogg 1899 = *Actornithophilus lari* (Packard 1870). The type is an immature specimen, and the correct host is probably *Larus* sp.

Colpocephalum fumidum Kellogg 1896 = *Actornithophilus lari* (Packard 1870). The type is an immature specimen, and the correct host is probably *Larus* sp.

Colpocephalum grandiculum Kellogg and Chapman 1899 = *Actornithophilus lari* (Packard 1870). The type is an immature specimen, and the correct host is probably *Larus* sp.

Colpocephalum pœtulum Kellogg and Kuwana 1900 = *Actornithophilus bicolor* (Piaget 1880). Absolute synonymy.

Menopon striatum Kellogg 1899 = *Amyrsidea lagopi* (Grube 1851). Absolute synonymy.

Menopon irrumpens Kellogg and Chapman 1899 = *Austromenopon navigans* (Kellogg 1896). Absolute synonymy; with each sex being described as a different species.

Menopon petulans Kellogg and Chapman 1899 = *Austromenopon paululum* (Kellogg and Chapman 1899). *M. paululum* was described from male specimens collected from the Black-vented Shearwater, *Puffinus opisthomelas* Coues; the Sooty Shearwater, *Puffinus griseus* (Gmelin); and the Pink-footed Shearwater, *Puffinus creatopus* Coues. I designate as lectotypes the types collected from *Puffinus griseus* (Gmelin). *M. petulans* was described from a single female specimen collected from the Sooty Shearwater, *Puffinus griseus* (Gmelin). The types of both species were collected on the same day from the same locality. An examination of the types proved them to represent only a single species with the name *paululum* having page priority.

Colpocephalum laticeps Kellogg 1896 = *Ciconiphilus obscurus* (Giebel 1874). Absolute synonymy, and the latter name may prove to be a synonym of *Ciconiphilus decim-fasciatum* (Boisduval and Lacordaire 1835).

Menopon decoratum Kellogg 1896 described from specimens taken from the White-tailed Kite has led to a great deal of confusion. The correct host for this species is the California Cuckoo, *Coccyzus americanus occidentalis* Ridgway; and the correct name should be *Cuculiphilus decoratum* (Kellogg 1896). This species is distinctly different from *Cuculiphilus fasciatus* (Scopoli 1763), which probably does not occur in North America.

Menopon galapagensis Kellogg and Kuwana 1902 = *Cuculiphilus snodgrassi* (Kellogg and Kuwana 1902). Absolute synonymy, and the correct host is *Coccyzus melacoryphus* Vieillot.

Menopon longicephalum Kellogg 1896 = *Menopon gallinæ* (Linnæus 1758). Absolute synonymy.

Menopon mesoleucum americanum Kellogg 1896 = *Myrsidea interruptus* (Osborn 1896). Absolute synonymy.

Menopon titan impar Kellogg 1896 = *Piagetiella peralis* (Leidy 1878). Absolute synonymy.

Menopon titan linearis Kellogg 1896 = *Piagetiella bursæ-pelecani* (Perry 1876). Absolute synonymy.

Ferris has stated that *Menopon tridens pacificum* Kellogg 1896 could not be separated from *Pseudomenopon tridens* (Burmeister 1838). The author has compared Kellogg's material of *M. tridens insolens, M. tridens par,* and a slide labeled "var C" with specimens of *P. tridens* (Burmeister 1838) collected from *Fulica atra atra* (Linnæus) and believes them to be the same. The forms were separated only on size; but in any large series from the American Coot, *Fulica americanus* Gmelin, forms representing all of Kellogg's sub-species can be found.

References

Boisduval and Lacordaire
1835. Faune Entomologique des Environs de Paris, Paris. pp. 117–125.

Burmeister
1838. Handbuch der Entomologie, Berlin. Bd II, pp. 418–433.

Ferris
1924. The Mallophagan Family Menoponidæ, Part I. Parasitology, XVI, pp. 55–65.

Giebel
1874. Insecta Epizoa, Leipzig.

Grube
1851. Parasiten. Middendorff's Sibirische Reise, Bd II, Th. I, pp. 467–497.

Hopkins
1942. Stray Notes on Mallophaga.—V. Ann. and Mag. Nat. Hist., ser. II, IX, pp. 108–118.

Kellogg
1896. New Mallophaga, I. Proc. Calif. Acad. Sci., VI, pp. 31–168.

New Mallophaga, II. Proc. Calif. Acad. Sci., VI, p. 431–548.

——— and Chapman

1899. New Mallophaga, III. Occ. Papers Calif. Acad. Sci., VI, pp. 1–142.

——— and Kuwana

1900. Mallophaga from Alaskan birds. Proc. Acad. Nat. Sci. Phila., 1900, pp. 151–159.

———

1902. Mallophaga from birds. Proc. Wash. Acad. Sci., IV, pp. 457–491.

Leidy

1878. A Louse of the Pelican. Proc. Acad. Nat. Sci. Phila., 1878, p. 100.

Linnæus

1758. Systema Naturæ, 10th Edition.

Osborn

1896. Mallophaga. Bull. No. 5 (n. ser.), Div. Ent., U. S. Dept. of Agri., pp. 189–249

Packard

1870. Certain parasitic insects. Amer. Naturalist, IV, pp. 83–99.

Perry

1876. Proc. Lit. Phil. Soc. Liverpool, XXX, pp. lxxx and lxxxi.

Piaget

1880. Les Pediculines, Essai Monographique, Leyden.

Scopoli

1763. Entomologia Carniolica, Vindobonæ, pp. 381–385.

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